

# FSD5 Proceedings



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## A more integrated approach for a diversity of intensification approaches and pathways to cope with the necessity of sustainable intensification of African agri-food systems: The IntensAfrica initiative: Position paper.

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Agriculture faces some unprecedented challenges at global level and in Europe but, for Africa, these challenges are particularly acute on several fronts. The agriculture sector (in the broad sense, including crops, animal production, forestry, aquaculture, etc.) represents the dominant part of the economy in most African countries and provides the majority of employments and livelihoods and hence will play a central role in the development of the continent. At the same time, African agriculture and its associated value chains are expected to contribute to local food and nutrition security, to preserve biodiversity, to provide work opportunities in rural areas, and to have a catalytic effect on the development of related economic sectors. As the African population will continue, in the midterm, to grow both in urban areas and in rural areas, African agriculture will be required to grow and evolve quickly, in particular to adapt to changes in demand. Beyond the expected surge in productivity, African producers will have to engage in a process of intensification in a sustainable way, which means increase of yield in a context of scarcity of natural resources and threats against fragile livelihoods while, at the same time, facing new constraints linked to climate change, competing energy chain values and dwindling natural resources.

In Africa (and in Europe as well), agricultural and food systems will face growing constraints: scarcity of natural resources, environmental degradation, increased energy and input costs, markets more opened to competition, higher vulnerability to various risks, price volatility, demographic changes and migration, etc. Furthermore, European agriculture is confronted with a “plateauing” of yields. Doubts are raised on the ability of such systems to further increase yield, while avoiding increased energy and input costs and negative environmental impacts. European agricultural practices are also often criticized for their consequences on water contamination and their significant contribution to greenhouse gas (GHG) emissions.

It is clear that current agricultural practices, with or without high levels of external inputs, often have negative impacts on the environment and the natural resource base. Effects may vary, from soil fertility degradation, loss of biodiversity and ecosystem functions, pollution of water sources, to emission of GHG, for instance. There is a growing consensus that the sustainability of agriculture needs to increase and that “business as usual” can no longer be considered as a sustainable option. However, there is still much debate about what should be done instead.

New approaches will be required since sustainable intensification is not only about higher outputs, but also about prudent and efficient use of resources, eco-system services, social and economic impacts, induced technological dependency, limits of natural and energetic resources, etc., all at different scales of time and space. New exciting avenues are offered by agro-ecological approaches based on the understanding and mobilization of agroecological processes like the optimization of available water and nutrients and the control of pests with limited use of fertilizers, pesticides and energy. These avenues need to be analyzed and compared, with the appropriate tools and metrics, in order to evaluate their performance and resource use efficiency as well as their sustainability. Comparative research is needed to fully unlock the potential and the limitations of this approach.

The socio-economic and biophysical environments are extremely diverse across Africa, resulting in very diverse farming systems and diets. As a consequence, the solutions aimed for need to be built and adapted to each local context, which means that no magical solution exists, and different pathways for sustainable intensification need to be developed. Despite the great importance of the local contexts, there is also evidence that improving some generic soil or ecophysiological functions<sup>1</sup>, either by practices or by crop breeding, could significantly alleviate the burden generated by the impact of intensified agriculture on natural resources, and would dramatically modify the long term natural resources balances.

Economic development has demonstrated the capacity of African farming systems to respond to emerging markets, nationally and internationally, but this often comes with considerable environmental or social costs, which appear poorly self-regulating. This highlights the importance of replacing the “business as usual” approach by tailor-made local adaptations – able to create and manage markets.

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Because of the diversity and the complexity of the situations, local innovation systems will play a crucial role to bring up new solutions, mingling all kinds of knowledge and achieving the desired impacts. The role of scientific research in these systems will be important but should be revisited, as S3A states, in multi-stakeholders partnerships. At the same time, scientific research must also be active in combining policies, science, market organization, etc. and involving not only producers but all the actors along the value chain, thus attracting expertise and capital into the agricultural sector.

Though the situation has improved in some countries in recent years, National Agricultural Research systems in Africa often have limited capacity, in human resources, research infrastructure and funding, to address all the challenges involved in sustainable intensification of the agro-food systems. International and European research organizations and research funding agencies are increasingly trying to invest in research for development programs in concerted action with their African partners. However, this external support often remains scattered, which hampers the impact of these efforts on the agricultural led development of Africa. There is a need to increase the African capacity in research for development and to harmonize the support from other partners to create a critical mass for addressing the challenge of sustainable agricultural intensification.

The overall objective of this initiative is only achievable through a concerted and persistent effort and IntensAfrica will be developed as a long term partnership between the two continents. It will contribute to the sustainable intensification for food and nutrition security and economic development by concentrating means on strategic issues of common interest and by creating a critical mass to address the complex issues related to the sustainable intensification pathways development. It will aim at bringing together and streamlining the wealth and diversity of existing partnerships and projects in different agroecological situations, socioeconomic contexts, and policy environments working on sustainable intensification already.